The Conference Board

Capital/Labor Ratio: U.S. – Japan Comparison

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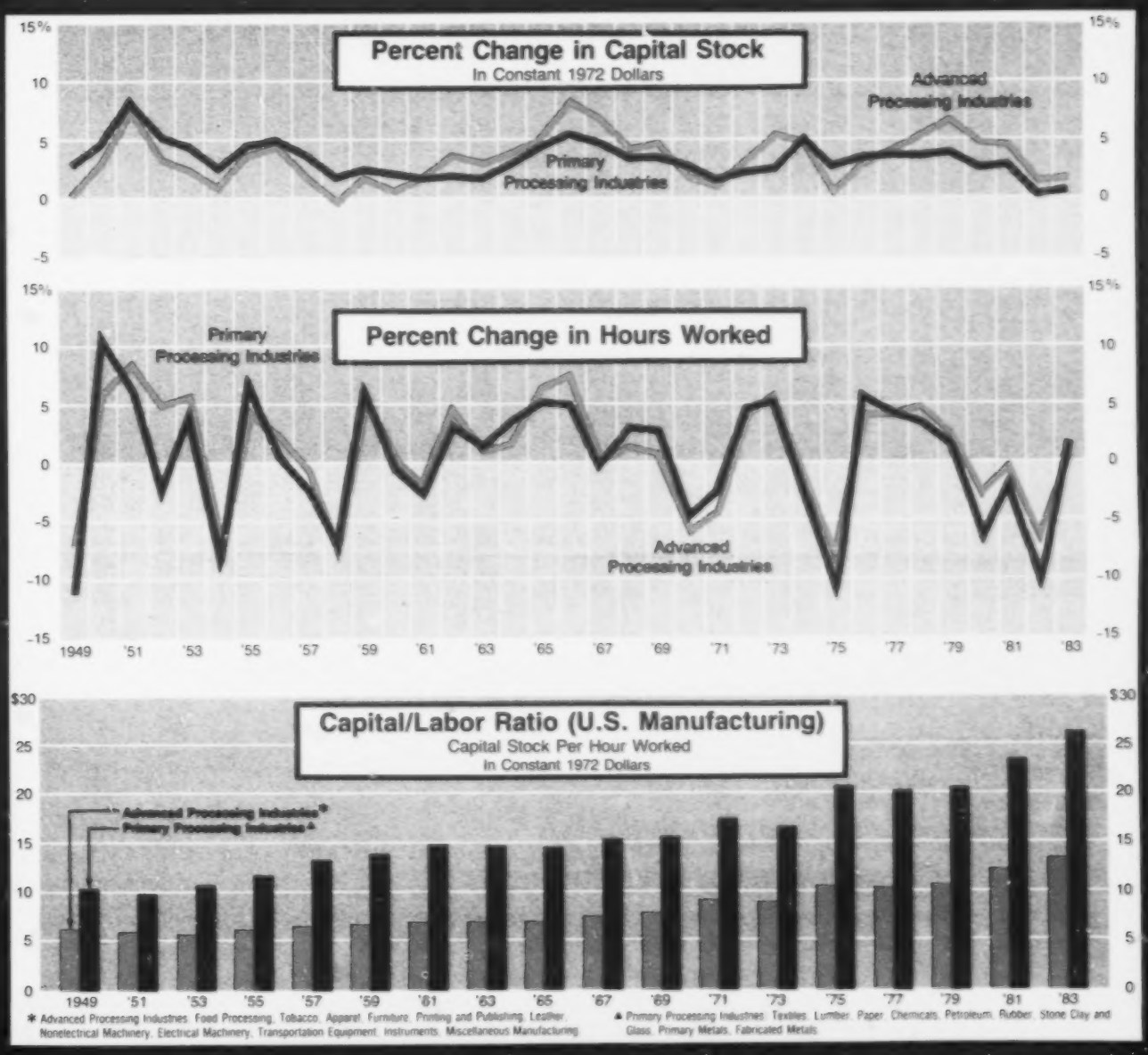
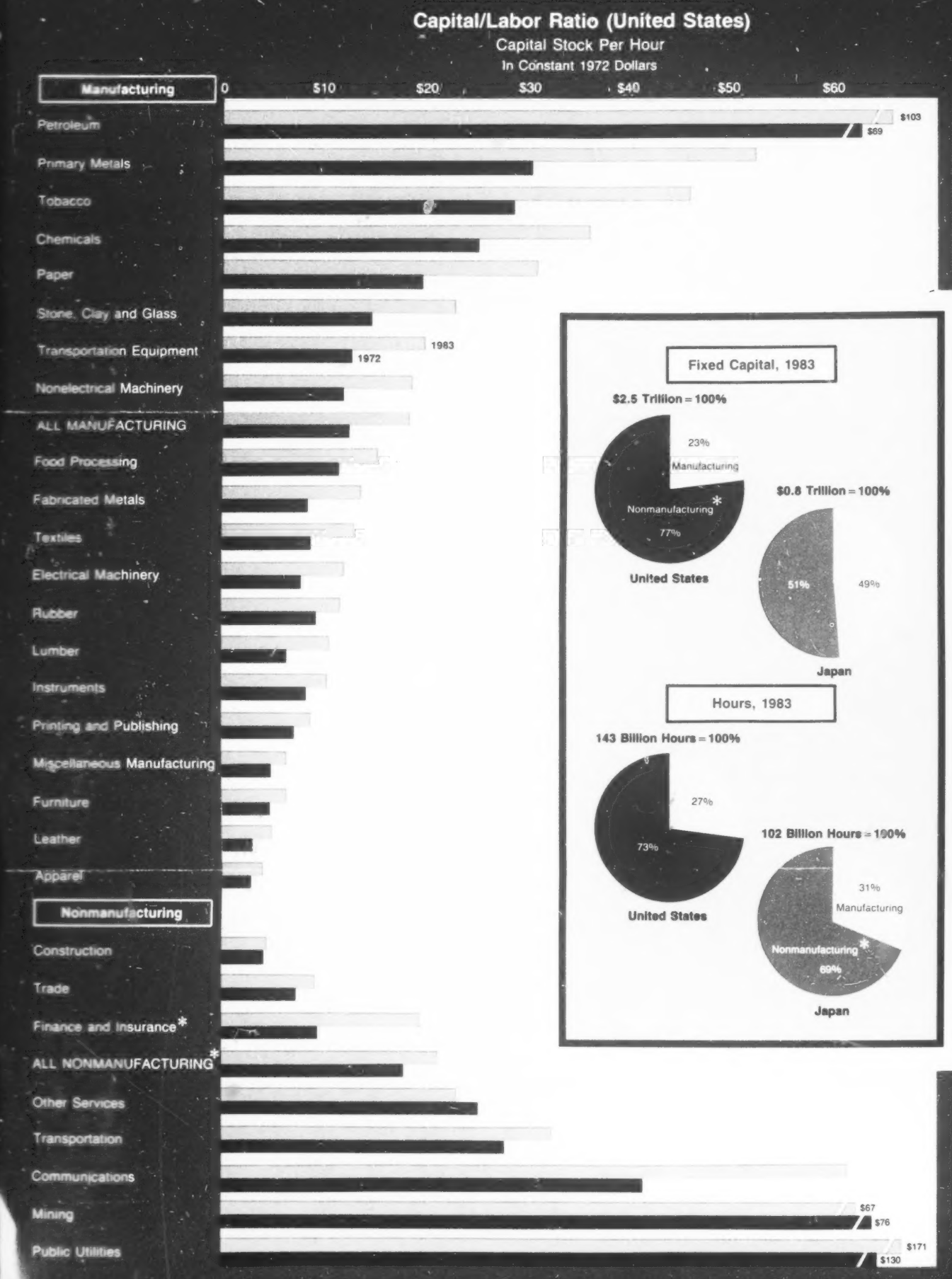
Labor and capital are the essential inputs in the production process. Raw materials or ideas become goods or services with the necessary tools in properly trained hands. Some processes are labor intensive—that is, they require large amounts of labor input relative to capital input; other processes are capital intensive. In general, the U.S. capital stock has been rising faster than the number of worker hours over the last few years. As a result, the rise in the economywide capital/labor ratio has accelerated. This trend is, in turn, a contributing factor in the faster rate of labor productivity gain in the last few years.



* Advanced Processing Industries: Food Processing, Tobacco, Apparel, Furniture, Printing and Publishing, Leather, Nonelectrical Machinery, Electrical Machinery, Transportation Equipment, Instruments, Miscellaneous Manufacturing

▲ Primary Processing Industries: Textiles, Lumber, Paper, Chemicals, Petroleum, Rubber, Stone Clay and Glass, Primary Metals, Fabricated Metals


Capital/Labor Ratio (United States)
Capital Stock Per Hour
In Constant 1972 Dollars
Manufacturing
0
$10
$20
$30
$40
$50
$60
Petroleum
Primary Metals
Tobacco
Chemicals
Paper
Stone, Clay and Glass
Transportation Equipment
Nonelectrical Machinery
ALL MANUFACTURING
Food Processing
Fabricated Metals
Textiles
Electrical Machinery
Rubber
Lumber
Instruments
Printing and Publishing
Miscellaneous Manufacturing
Furniture
Leather
Apparel
Nonmanufacturing
Construction
Trade
Finance and Insurance*
ALL NONMANUFACTURING*
Other Services
Transportation
Communications
Mining
Public Utilities
$103
$69
1983
1972
$67
$76
$171
$130
Fixed Capital, 1983
$2.5 Trillion = 100%
23%
Manufacturing
Nonmanufacturing*
77%
United States
$0.8 Trillion = 100%
51%
49%
Japan
Hours, 1983
143 Billion Hours = 100%
27%
73%
United States
102 Billion Hours = 100%
31%
Manufacturing
Nonmanufacturing*
69%
Japan

Capital/Labor Ratio (Japan)

Fixed Capital Stock Per Hour
In Constant 1972 Dollars

TECHNICAL NOTE ON THE DATA

HOURS: For United States, all hours worked plus paid vacation, holidays, and sick leave.

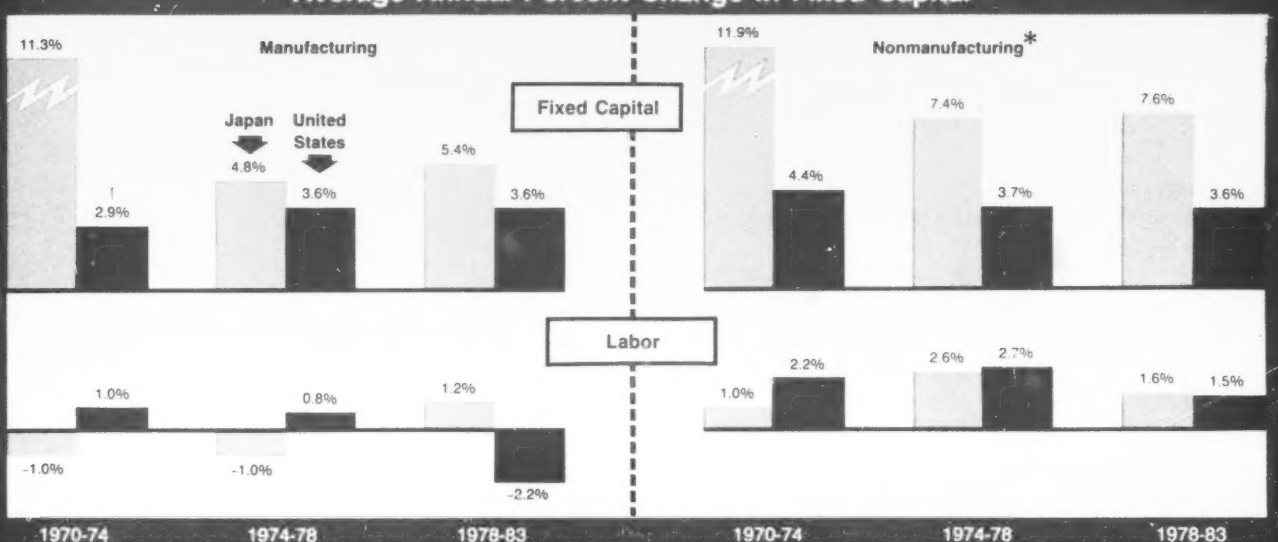
For Japan, only hours worked.

CAPITAL: All estimates are the historical value of assets (undepreciated) in constant 1972 dollars (inflation adjusted).

For United States, assets include land, inventory, plant and equipment.

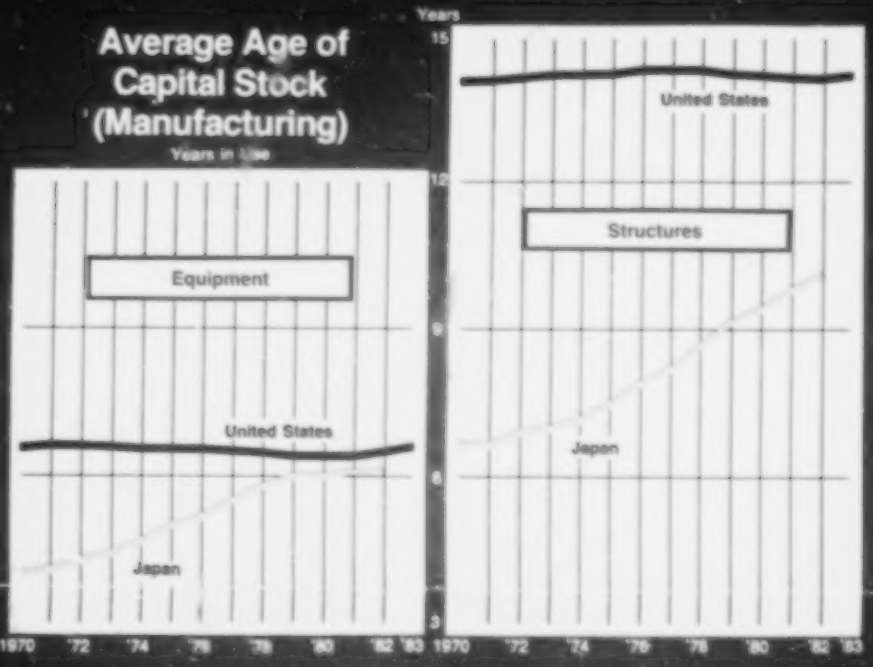
For Japan, assets include only plant and equipment (fixed capital). Asset values in yen were converted to dollar amounts using a fixed exchange rate of 250 yen = $1 (that is, actual currency fluctuations were ignored).

Average Annual Percent Change in Fixed Capital



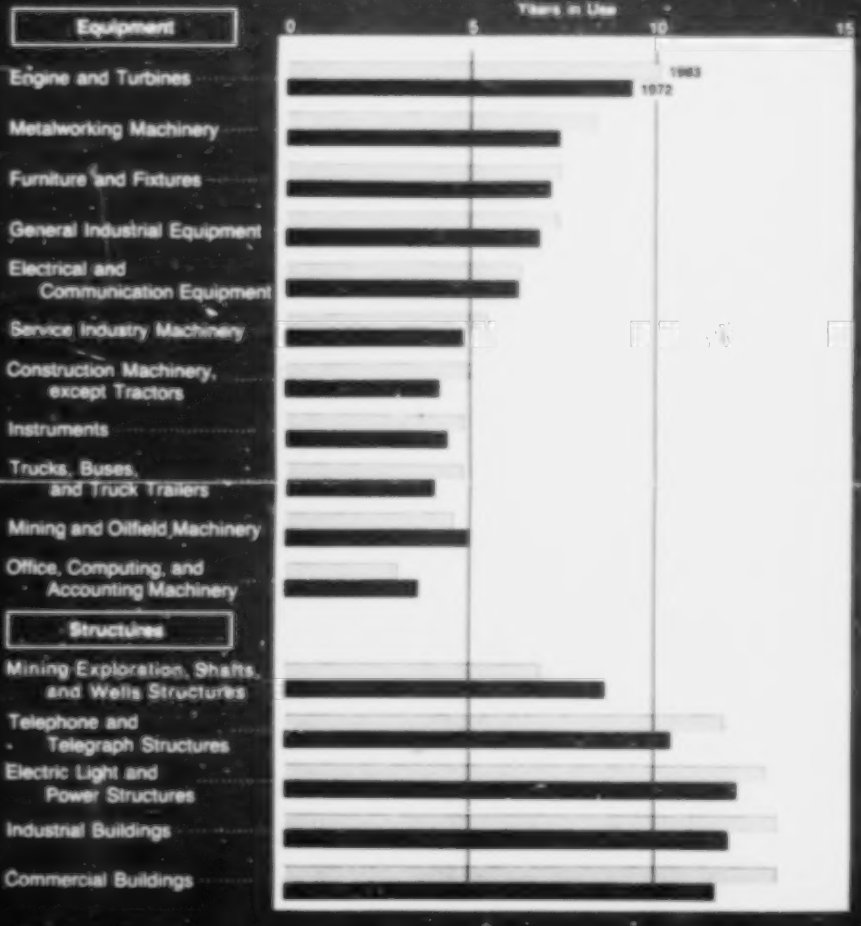
* Nonmanufacturing data exclude Real Estate.

Average Age of Capital Stock (Manufacturing)



Average Age of Capital Stock – United States

By Selected Type of Equipment and Structures



Labor input is measured here by the total number of worker hours. This is a commonly used but somewhat crude measure because all workers are not equally productive. Capital input is measured here by the value of land, inventory and fixed capital (plant and equipment), deflated into constant dollars but without any allowance for depreciation. Changes in land values are inconsequential; changes in inventory are tied to the overall rate of economic activity—and service providers have no inventory. Growth in the stock of capital, then, is principally a reflection of additional buildings and machinery. Over the last 35 years, the stock of capital has increased by an average annual rate of about 3.9%, while the number of hours worked rose at about a 1.2% rate. Thus, the capital/labor ratio for all business has risen from $8.23 in 1948 to $20.33 by 1983 (expressed in 1972 dollars).

The mix of capital and labor inputs varies from one industry to another. In 1983, the public utilities had a capital/labor ratio of $171, while the ratio for the labor-intensive apparel industry was $4. In general primary-processing industries (those that turn raw material into semi-finished products) require more capital stock relative to labor, than do more advanced stages of production. A comparison of U.S. and Japanese industries shows that the type of industrial process, not geography, is the determining factor. The comparison does show, however, that while the U.S. capital stock is generally older than the Japanese, a slowing in the Japanese rate of investment over the last few years has been gradually narrowing the differences.

Akio Tamagawa
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Sources: *Japan* Economic Planning Agency; Department of Labor; Japan Development Bank; *U.S.* Bureau of Economic Analysis; American Productivity Center; The Conference Board.

ECONOMIC ROAD MAPS

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Prices for Quantities of the chart will be supplied on request to Information Service

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